Puma REST samples

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Introduction

This article holds a collection of PUMA (Portal User Management Architecture) REST API usage samples and is written to give a jump-start into development using the PUMA REST services. Each use case will be summarized with URL, in- and output data. The article does neither cover general development for REST services nor all details of PUMA REST API. It has been written using IBM WebSphere Portal 7.0.0.2. Note that in other releases details may change and other uses cases may be supported. Also there is no warranty, for official documentation see the latest product documentation.

The Puma REST API should be used in code that is running outside the portal context, e.g. in a remote client. If your code is running inside portal context, you should use the standard Puma API instead, e.g. in a portlet.

Return Codes to be expected are according to other REST APIs. Most common are:

- HTTP 200: OK

- HTTP 201: Created

- HTTP 400: Bad Request (verify URL, URL parameters and input data)

- HTTP 401: Unauthorized (need to login)

- HTTP 403: Forbidden (see output)

- HTTP 404: Resource not found (verify URL)

For other return codes see the official product documentation.

URLs to be used
The PUMA REST API can be accessed with two different URL formats:

- **/wps**/um/secure/currentuser/profile

- /**wps/mycontenthandler?uri=**um:secure/currentuser/profile

In this document we will use the first format as links within the payload of responses consistently use that format as well. If you prefer the second format, which is equivalent, be sure that you have installed at least IBM WebSphere Portal 7.0.0.1 CF009 or 7.0.0.2.

Authentication
The Remote PUMA SPI REST Service allows requests to some operations only for authenticated users. If you plan to use the HTTP basic authentication with the URL pattern "/um/secure", you need to configure the corresponding Trust Association Interceptor (TAI) in IBM WebSphere Application Server (WAS).

Global security > **Trust association** > **Interceptors** > **com.ibm.portal.auth.tai.HTTPBasicAuthTAI**
Specifies the trust information for reverse proxy servers.
General Properties

* Interceptor class name

com.ibm.portal.auth.tai.HTTPBasicAuthTAI

Custom properties

Select	Name	Value	
☐	enabled	true	New
☐	authenticationRealm	WPS	Edit
☐	useRegExp	true	Delete
☐	loginTarget	Portal_LTPA	
☐	userAgentBlackList	AllAgentsAllowed	
☐	userAgentWhiteList	NoAgentSpecified	
☐	urlBlackList	/wps/myportal.*	
☐	urlWhiteList	/wps/mycontenthandler.* /wps/um/secure.*	
☐			

Apply   OK   Reset   Cancel

See the article about security concepts, link to be found in the appendix.

Parameters
expandRefs
Whenever there are references included in the REST responses, they are by default included without details. This is done because the URL parameter "expandRefs" is "false" by default. If you add the parameter to your REST call using "true" then all references (e.g. users in a search request) will contain details. One example is that in a search request for all users the user's attribute values are included in the response as well. Another example is that for group membership request the group details are included in the response as well. See examples in the section "Working with membership".

resultsPerPage
You can add this parameter to URLs if you want to page through the result. The response will contain information about total number of search results and links to first, last and next page.

sortByAttributes
If you use resultsPerPage then you can add this parameter to determine the attribute that is used for sorting the result list.

sortDescending
If you use sortByAttributes then you can add this parameter to invert the sort order from ascending to descending.

update
This parameter is to be used for update requests. It defines how the update will be done. Possible values are:

- replace: All existing data relevant to this update will be replaced by the input. This is the default.

- merge: The existing data relevant to this update and input data will be merged.

- delete: The existing attributes or instances relevant to this update (depending on the area where used), that are also in the input data will be deleted. Values of the input data are ignored here.

Retrieving the current user
You can retrieve the current user which is the user that sends the request. To send a request to the PUMA REST URL containing "secure" you need to be authenticated (logged in). If you are not, you will receive HTTP 401.

GET http://portalhost:10039/wps/um/secure/currentuser/profile

Result: HTTP 200

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>uid=wpsadmin,o=defaultWIMFileBasedRealm</atom:title>
   <atom:link
href="/wps/um/secure/users/profiles/Z9eAeOHDI3OKCJ9DAMM474RDIJMG63RCIJM8CJ1EAMMG6NPD46Q8C2BD43R86N1"
   rel="self"/>
   <atom:link
href="/wps/um/secure/groupmembership/Z9eAeOHDI3OKCJ9DAMM474RDIJMG63RCIJM8CJ1EAMMG6NPD46Q8C2BD43R86N1"
   rel="related"/>
   <atom:id>um:secure/users/profiles/Z9eAeOHDI3OKCJ9DAMM474RDIJMG63RCIJM8CJ1EAMMG6NPD46Q8C2BD43R86N1</atom:id>
   <atom:updated>2011-11-29T14:01:28.213Z</atom:updated>
   <atom:content type="application/xml">
```

```
    <um:profile type="user" identifier="uid=wpsadmin,o=defaultWIMFileBasedRealm">
      <um:attribute name="countryName" type="xs:string" multiValued="true"/>
      <um:attribute name="pager" type="xs:string" multiValued="true"/>
      <um:attribute name="street" type="xs:string" multiValued="true"/>
      <um:attribute name="roomNumber" type="xs:string" multiValued="true"/>
      <um:attribute name="viewIdentifiers" type="ViewIdentifierType" multiValued="true"/>
      <um:attribute name="homePostalAddress" type="xs:string" multiValued="true"/>
      <um:attribute name="carLicense" type="xs:string" multiValued="true"/>
      <um:attribute name="localityName" type="xs:string" multiValued="true"/>
      <um:attribute name="stateOrProvinceName" type="xs:string" multiValued="true"/>
      <um:attribute name="uid" type="xs:string" multiValued="false">
         <um:attributeValue>wpsadmin</um:attributeValue>
      </um:attribute>
      <um:attribute name="ibm-jobTitle" type="xs:string" multiValued="true"/>
      <um:attribute name="groups" type="Group" multiValued="true"/>
      <um:attribute name="businessAddress" type="AddressType" multiValued="true"/>
      <um:attribute name="homeAddress" type="AddressType" multiValued="true"/>
      <um:attribute name="title" type="xs:string" multiValued="true"/>
      <um:attribute name="postalCode" type="xs:string" multiValued="true"/>
      <um:attribute name="sn" type="xs:string" multiValued="false">
         <um:attributeValue>wpsadmin</um:attributeValue>
      </um:attribute>
      <um:attribute name="businessCategory" type="xs:string" multiValued="true"/>
      <um:attribute name="st" type="xs:string" multiValued="true"/>
      <um:attribute name="mobile" type="xs:string" multiValued="true"/>
      <um:attribute name="c" type="xs:string" multiValued="true"/>
      <um:attribute name="givenName" type="xs:string" multiValued="true"/>
      <um:attribute name="postalAddress" type="xs:string" multiValued="true"/>
      <um:attribute name="jpegPhoto" type="xs:hexBinary" multiValued="true"/>
      <um:attribute name="cn" type="xs:string" multiValued="false">
         <um:attributeValue>wpsadmin</um:attributeValue>
      </um:attribute>
      <um:attribute name="l" type="xs:string" multiValued="true"/>
      <um:attribute name="telephoneNumber" type="xs:string" multiValued="true"/>
      <um:attribute name="displayName" type="xs:string" multiValued="true"/>
      <um:attribute name="manager" type="xs:anyURI" multiValued="true"/>
      <um:attribute name="initials" type="xs:string" multiValued="true"/>
      <um:attribute name="partyRoles" type="PartyRole" multiValued="true"/>
      <um:attribute name="secretary" type="xs:anyURI" multiValued="true"/>
      <um:attribute name="facsimileTelephoneNumber" type="xs:string" multiValued="true"/>
      <um:attribute name="createTimestamp" type="xs:dateTime" multiValued="false">
         <um:attributeValue>Wed Jun 02 20:35:52 CEST 2010</um:attributeValue>
      </um:attribute>
      <um:attribute name="seeAlso" type="xs:string" multiValued="true"/>
      <um:attribute name="departmentNumber" type="xs:string" multiValued="true"/>
      <um:attribute name="modifyTimestamp" type="xs:dateTime" multiValued="false">
         <um:attributeValue>Fri Dec 17 14:30:49 CET 2010</um:attributeValue>
      </um:attribute>
      <um:attribute name="description" type="xs:string" multiValued="true"/>
      <um:attribute name="children" type="Entity" multiValued="true"/>
    </um:profile>
  </atom:content>
</atom:entry>
```

There is one special use case that does not need you to be authenticated. You can send the same request to the non-secured PUMA REST URL with authenticating first. In this case you will receive the values for the "anonymous portal user".

GET http://portalhost:10039/wps/um/currentuser/profile

Result: HTTP 200

We do not give an example output here, as it holds all available attributes, but the only having values are attributes "identifier" and "uid" in our setup.

Working with users
Search

Get all users:

You can retrieve all available users as configured to PUMA and Virtual User Manager (VMM). Note that this call might return a huge list of users according to your setup. In that case you may want to page the result using URL parameter "resultsPerPage".

GET http://portalhost:10039/wps/um/secure/users/profiles

Result: HTTP 200

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>User profiles</atom:title>
   <atom:author>
      <atom:name>IBM WebSphere Portal</atom:name>
   </atom:author>
   <atom:link href="/wps/um/secure/users/profiles" rel="self"/>
   <atom:id>um:secure/users/profiles</atom:id>
   <atom:updated>2011-11-30T15:53:32.285Z</atom:updated>
   <atom:entry>
      <atom:title>uid=User3,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/users/profiles/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663"
      rel="related"/>
      <atom:id>um:secure/users/profiles/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663</atom:
id>
      <atom:updated>2011-11-30T15:53:32.285Z</atom:updated>
   </atom:entry>
   <atom:entry>
      <atom:title>uid=User2,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
      rel="related"/>
      <atom:id>um:secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613</atom:i
d>
      <atom:updated>2011-11-30T15:53:32.285Z</atom:updated>
   </atom:entry>
   <atom:entry>
      <atom:title>uid=User1,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
      rel="related"/>
      <atom:id>um:secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53</at
om:id>
      <atom:updated>2011-11-30T15:53:32.285Z</atom:updated>
   </atom:entry>
   <atom:entry>
      <atom:title>uid=wpsadmin,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/users/profiles/Z9eAeOHDI3OKCJ9DAMM474RDIJMG63RCIJM8CJ1EAMMG6NPD46Q8C2BD43R86N1"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z9eAeOHDI3OKCJ9DAMM474RDIJMG63RCIJM8CJ1EAMMG6NPD46Q8C2BD43R86N1"
      rel="related"/>
      <atom:id>um:secure/users/profiles/Z9eAeOHDI3OKCJ9DAMM474RDIJMG63RCIJM8CJ1EAMMG6NPD46Q8C2BD43R86N1</atom:i
d>
      <atom:updated>2011-11-30T15:53:32.285Z</atom:updated>
   </atom:entry>
```

```
</atom:feed>
```

Get some users in a sorted and paged view

If you want to search for one or more users, you can use the URL parameter "searchAttributes" to name attributes and the search pattern for them. The "=" needs also to be URL encoded and becomes "%3d". For attribute value you can work with asterisk "*", which needs to be entered URL encoded as "%2A".

You can use "resultsPerPage" attribute to specify how many results should be returned per request. Use "sortByAttribute" to specify the attribute that is used for sorting the result list and "descending" to specify the sort order.

GET http://portalhost:10039/wps/um/secure/users/profiles?**searchAttributes**=uid%3duser %2A&**resultsPerPage**=2&**sortByAttributes**=sn&**descending**=true

Result: HTTP 200

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
  <atom:title>User profiles</atom:title>
  <atom:author>
    <atom:name>IBM WebSphere Portal</atom:name>
  </atom:author>
  <atom:link href="/wps/um/secure/users/profiles?searchAttributes=uid%3Duser*"
rel="self"/>
  <atom:id>um:secure/users/profiles%3FsearchAttributes%3Duid%3Duser*</atom:id>
  <atom:updated>2011-11-29T13:41:30.455Z</atom:updated>
  <atom:link href="/wps/um/secure/users/profiles?searchAttributes=uid
%3Duser*&amp;resultsPerPage=2&amp;sortByAttributes=sn&amp;descending=true&amp;pageHandle=390824e9&amp;page=1"
rel="first"/>
  <atom:link href="/wps/um/secure/users/profiles?searchAttributes=uid
%3Duser*&amp;resultsPerPage=2&amp;sortByAttributes=sn&amp;descending=true&amp;pageHandle=390824e9&amp;page=2"
rel="last"/>
  <atom:link href="/wps/um/secure/users/profiles?searchAttributes=uid
%3Duser*&amp;resultsPerPage=2&amp;sortByAttributes=sn&amp;descending=true&amp;pageHandle=390824e9&amp;page=2"
rel="next"/>
  <opensearch:totalResults>3</opensearch:totalResults>
  <opensearch:startIndex>1</opensearch:startIndex>
  <opensearch:itemsPerPage>2</opensearch:itemsPerPage>
  <atom:entry>
    <atom:title>uid=User3,o=defaultWIMFileBasedRealm</atom:title>
    <atom:link
href="/wps/um/secure/users/profiles/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663"
    rel="self"/>
    <atom:link
href="/wps/um/secure/groupmembership/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663"
    rel="related"/>
    <atom:id>um:secure/users/profiles/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663</atom:id>
    <atom:updated>2011-11-29T13:41:30.455Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>uid=User2,o=defaultWIMFileBasedRealm</atom:title>
    <atom:link
href="/wps/um/secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
    rel="self"/>
    <atom:link
href="/wps/um/secure/groupmembership/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
    rel="related"/>
    <atom:id>um:secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613</atom:id>
    <atom:updated>2011-11-29T13:41:30.455Z</atom:updated>
  </atom:entry>
</atom:feed>
```

You need to add any attributes you want to retrieve for the users in the result as URL parameter "includeAttributes". If you name a not existing attribute you will receive HTTP 400. E.g. for an attribute named "something" we receive: "Error 400: EJPSG0007E: One of the attributes specified is not defined for this member type.something"

GET http://portalhost:10039/wps/um/secure/users/profiles?searchAttributes=uid%3duser%2A&includeAttributes=givenName,ibm-primaryEmail

Result: HTTP 200

```xml
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>User profiles</atom:title>
   <atom:author>
      <atom:name>IBM WebSphere Portal</atom:name>
   </atom:author>
   <atom:link href="/wps/um/secure/users/profiles?includeAttributes=givenName%2Cibm-primaryEmail&amp;searchAttributes=uid
%3Duser*"
   rel="self"/>
   <atom:id>um:secure/users/profiles%3FincludeAttributes%3DgivenName%2Cibm-primaryEmail%26searchAttributes%3Duid
%3Duser*</atom:id>
   <atom:updated>2011-11-29T13:47:47.098Z</atom:updated>
   <atom:entry>
      <atom:title>uid=User3,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/users/profiles/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663"
      rel="related"/>
      <atom:id>um:secure/users/profiles/Z9eAeI9CC3J17P1E6MM8CJHP2MMG6IHD6MM47I9D8JMCCMHO6MHP6OPDE3RK663</atom:
id>
      <atom:updated>2011-11-29T13:47:47.098Z</atom:updated>
      <atom:content type="application/xml">
         <um:profile type="user" identifier="uid=User3,o=defaultWIMFileBasedRealm">
            <um:attribute name="givenName" type="xs:string" multiValued="true">
              <um:attributeValue>Sample</um:attributeValue>
            </um:attribute>
            <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
              <um:attributeValue>user3@ibm.com</um:attributeValue>
            </um:attribute>
         </um:profile>
      </atom:content>
   </atom:entry>
   <atom:entry>
      <atom:title>uid=User2,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
      rel="related"/>
      <atom:id>um:secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613</atom:i
d>
      <atom:updated>2011-11-29T13:47:47.098Z</atom:updated>
      <atom:content type="application/xml">
         <um:profile type="user" identifier="uid=User2,o=defaultWIMFileBasedRealm">
            <um:attribute name="givenName" type="xs:string" multiValued="true">
              <um:attributeValue>Sample</um:attributeValue>
            </um:attribute>
            <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
              <um:attributeValue>user2@ibm.com</um:attributeValue>
            </um:attribute>
         </um:profile>
      </atom:content>
```

```
    </atom:entry>
  <atom:entry>
    <atom:title>uid=User1,o=defaultWIMFileBasedRealm</atom:title>
    <atom:link
href="/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
    rel="self"/>
    <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
    rel="related"/>
    <atom:id>um:secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53</atom:id>
    <atom:updated>2011-11-29T13:47:47.098Z</atom:updated>
    <atom:content type="application/xml">
       <um:profile type="user" identifier="uid=User1,o=defaultWIMFileBasedRealm">
          <um:attribute name="givenName" type="xs:string" multiValued="true">
             <um:attributeValue>Sample</um:attributeValue>
          </um:attribute>
          <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
             <um:attributeValue>user1@ibm.com</um:attributeValue>
          </um:attribute>
       </um:profile>
    </atom:content>
  </atom:entry>
</atom:feed>
```

Retrieve

You can retrieve a single user's information by two different approaches:

1. GET using serialized ObjectID:

http://portalHost:<portalPortNumber>/wps/um/secure/users/profiles/<ObjectID>

e.g.:
http://portalHost:<portalPortNumber>/wps/um/secure/users/profiles/9eAeJ9C6JQKCKHO6M
M86KPO4JMG6H9E6JM4CP1C0JM46JPOC6RK6G9O0JH1633

2. GET using the DN:

http://portalHost:<portalPortNumber>/wps/um/secure/users/profiles?identifier=<DN>

e.g.:

http://portalHost:<portalPortNumber>/wps/um/secure/users/profiles?
identifier=uid=wpsadmin,o=defaultWIMFileBasedRealm

Note that you get the full attribute list on retrieve using the serialized ObjectID. Instead when using the identifier you only get the basic entry for the user as it is handled as a search. You can then specify the attributes you want to receive as URL parameter. E.g. "&includeAttributes=uid,ibm-primaryEmail"

GET
http://portalhost:10039/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MM
G6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53?includeAttributes=givenName,ibm-
primaryEmail

Result: HTTP 200

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
```

```xml
    <atom:title>uid=User1,o=defaultWIMFileBasedRealm</atom:title>
    <atom:link
href="/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
    rel="self"/>
    <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
    rel="related"/>
    <atom:id>um:secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53</ato
m:id>
    <atom:updated>2011-11-29T13:50:21.251Z</atom:updated>
    <atom:content type="application/xml">
      <um:profile type="user" identifier="uid=User1,o=defaultWIMFileBasedRealm">
        <um:attribute name="givenName" type="xs:string" multiValued="true">
          <um:attributeValue>Sample</um:attributeValue>
        </um:attribute>
        <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
          <um:attributeValue>user1@ibm.com</um:attributeValue>
        </um:attribute>
      </um:profile>
    </atom:content>
</atom:entry>
```

Create

The following example shows how to create a user called "New User". Note: The logged on user needs to be authorized for this operation.

POST http://portalhost:10039/wps/um/secure/users/profiles

Input:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<um:profile type="user" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd">
  <um:attribute name="ibm-primaryEmail" type="string"><um:attributeValue>newuser@ibm.com</um:attributeValue></um:attribute>
  <um:attribute name="uid" type="string"><um:attributeValue>NewUser</um:attributeValue></um:attribute>
  <um:attribute name="sn" type="string"><um:attributeValue>NewUser</um:attributeValue></um:attribute>
  <um:attribute name="cn" type="string"><um:attributeValue>NewUser</um:attributeValue></um:attribute>
  <um:attribute name="givenName" type="string"><um:attributeValue>New User</um:attributeValue></um:attribute>
  <um:attribute name="password" type="string"><um:attributeValue>password</um:attributeValue></um:attribute>
</um:profile>
```

Result: HTTP 201 Created

```xml
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
    <atom:title>uid=NewUser,o=defaultWIMFileBasedRealm</atom:title>
    <atom:link
href="/wps/um/secure/users/profiles/Z9eAe6RC46I5C4BPIJM462JC2MMG653EGJM8C1RDCJMOCO9E2MI16MHC26PG633"
    rel="self"/>
    <atom:link
href="/wps/um/secure/groupmembership/Z9eAe6RC46I5C4BPIJM462JC2MMG653EGJM8C1RDCJMOCO9E2MI16MHC26PG633"
    rel="related"/>
    <atom:id>um:secure/users/profiles/Z9eAe6RC46I5C4BPIJM462JC2MMG653EGJM8C1RDCJMOCO9E2MI16MHC26PG633</atom:id>
    <atom:updated>2011-12-01T14:41:01.180Z</atom:updated>
    <atom:content type="application/xml">
      <um:profile type="user" identifier="uid=NewUser,o=defaultWIMFileBasedRealm">
        <um:attribute name="countryName" type="xs:string" multiValued="true"/>
        <um:attribute name="pager" type="xs:string" multiValued="true"/>
        <um:attribute name="street" type="xs:string" multiValued="true"/>
        <um:attribute name="roomNumber" type="xs:string" multiValued="true"/>
        <um:attribute name="viewIdentifiers" type="ViewIdentifierType" multiValued="true"/>
        <um:attribute name="homePostalAddress" type="xs:string" multiValued="true"/>
        <um:attribute name="carLicense" type="xs:string" multiValued="true"/>
        <um:attribute name="localityName" type="xs:string" multiValued="true"/>
        <um:attribute name="stateOrProvinceName" type="xs:string" multiValued="true"/>
        <um:attribute name="uid" type="xs:string" multiValued="false">
          <um:attributeValue>NewUser</um:attributeValue>
        </um:attribute>
        <um:attribute name="ibm-jobTitle" type="xs:string" multiValued="true"/>
```

```
          <um:attribute name="groups" type="Group" multiValued="true"/>
          <um:attribute name="businessAddress" type="AddressType" multiValued="true"/>
          <um:attribute name="homeAddress" type="AddressType" multiValued="true"/>
          <um:attribute name="title" type="xs:string" multiValued="true"/>
          <um:attribute name="postalCode" type="xs:string" multiValued="true"/>
          <um:attribute name="sn" type="xs:string" multiValued="false">
             <um:attributeValue>NewUser</um:attributeValue>
          </um:attribute>
          <um:attribute name="businessCategory" type="xs:string" multiValued="true"/>
          <um:attribute name="st" type="xs:string" multiValued="true"/>
          <um:attribute name="mobile" type="xs:string" multiValued="true"/>
          <um:attribute name="c" type="xs:string" multiValued="true"/>
          <um:attribute name="givenName" type="xs:string" multiValued="true">
             <um:attributeValue>New User</um:attributeValue>
          </um:attribute>
          <um:attribute name="postalAddress" type="xs:string" multiValued="true"/>
          <um:attribute name="jpegPhoto" type="xs:hexBinary" multiValued="true"/>
          <um:attribute name="cn" type="xs:string" multiValued="false">
             <um:attributeValue>NewUser</um:attributeValue>
          </um:attribute>
          <um:attribute name="l" type="xs:string" multiValued="true"/>
          <um:attribute name="telephoneNumber" type="xs:string" multiValued="true"/>
          <um:attribute name="displayName" type="xs:string" multiValued="true"/>
          <um:attribute name="manager" type="xs:anyURI" multiValued="true"/>
          <um:attribute name="initials" type="xs:string" multiValued="true"/>
          <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
             <um:attributeValue>newuser@ibm.com</um:attributeValue>
          </um:attribute>
          <um:attribute name="partyRoles" type="PartyRole" multiValued="true"/>
          <um:attribute name="secretary" type="xs:anyURI" multiValued="true"/>
          <um:attribute name="facsimileTelephoneNumber" type="xs:string" multiValued="true"/>
          <um:attribute name="createTimestamp" type="xs:dateTime" multiValued="false">
             <um:attributeValue>Thu Dec 01 15:41:01 CET 2011</um:attributeValue>
          </um:attribute>
          <um:attribute name="seeAlso" type="xs:string" multiValued="true"/>
          <um:attribute name="departmentNumber" type="xs:string" multiValued="true"/>
          <um:attribute name="description" type="xs:string" multiValued="true"/>
          <um:attribute name="children" type="Entity" multiValued="true"/>
      </um:profile>
   </atom:content>
</atom:entry>
```

Update

You can update user profiles using PUMA REST API if the user you logged on with is authorized to do so. In the following example the attribute "givenName" is changed to "Sample1234". As we do not add the URL parameter "update" the default is used automatically, which is "replace". All values send in the request payload will be replaced.

Instead just using the "um" elements as in the sample below, you could also sent in the full result of a prior request with some changed values.

Note: Some attributes (in out-of-the-box setup only "uid") are read-only and cannot be changed. If you try it anyway, you will receive an HTTP 403 for such a request.

POST:
http://portalhost:10039/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MM G6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53?update=replace

Input:

```
<um:profile xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" type="user">
   <um:attribute name="givenName" type="string"><um:attributeValue>Sample1234</um:attributeValue></um:attribute>
</um:profile>
```

Result: HTTP 200

Delete

You can delete users by sending a delete request to their profile URL. The user you have logged on with needs to have the authorization to delete users.

DELETE http://portalhost:10039/wps/um/secure/users/profiles/Z9eAe6RC46I5C4BPIJM462JC2MMG6 53EGJM8C1RDCJMOCO9E2MI16MHC26PG633

Result: HTTP 200 OK

Working with groups
Search
Get all groups

You can retrieve all available groups as configured to PUMA and Virtual Member Manager (VMM). Note that this call might return a huge list of groups according to your setup. In that case you may want to page the result using URL parameter "resultsPerPage".

GET: http://portalhost:10039/wps/um/secure/groups/profiles

Result: HTTP 200

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>Group profiles</atom:title>
   <atom:author>
      <atom:name>IBM WebSphere Portal</atom:name>
   </atom:author>
   <atom:link href="/wps/um/secure/groups/profiles" rel="self"/>
   <atom:id>um:secure/groups/profiles</atom:id>
   <atom:updated>2011-11-30T15:52:10.275Z</atom:updated>
   <atom:entry>
      <atom:title>cn=wpsadmins,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/groups/profiles/Z8eAe53DI3R8CL9CIJMK6O1CAJMG61JCAJM8C63PCJMOCP1P86HT6IHPAMIDCG1"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z8eAe53DI3R8CL9CIJMK6O1CAJMG61JCAJM8C63PCJMOCP1P86HT6IHPAMIDCG1"
      rel="related"/>
      <atom:id>um:secure/groups/profiles/Z8eAe53DI3R8CL9CIJMK6O1CAJMG61JCAJM8C63PCJMOCP1P86HT6IHPAMIDCG1</atom:i
d>
      <atom:updated>2011-11-30T15:52:10.275Z</atom:updated>
   </atom:entry>
   <atom:entry>
      <atom:title>cn=MyUserGroup,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"
      rel="related"/>
      <atom:id>um:secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1</ato
m:id>
      <atom:updated>2011-11-30T15:52:10.275Z</atom:updated>
   </atom:entry>
   <atom:entry>
      <atom:title>cn=AnotherGroup,o=defaultWIMFileBasedRealm</atom:title>
      <atom:link
href="/wps/um/secure/groups/profiles/Z8eAe43P23R06IPCAJM4CLHP8JMG64BDGJM07LPO2MM865JCE3P465BO2JQ4613"
      rel="self"/>
      <atom:link
href="/wps/um/secure/groupmembership/Z8eAe43P23R06IPCAJM4CLHP8JMG64BDGJM07LPO2MM865JCE3P465BO2JQ4613"
      rel="related"/>
```

```
    <atom:id>um:secure/groups/profiles/Z8eAe43P23R06IPCAJM4CLHP8JMG64BDGJM07LPO2MM865JCE3P465BO2JQ4613</atom:id>
    <atom:updated>2011-11-30T15:52:10.275Z</atom:updated>
  </atom:entry>
</atom:feed>
```

Get some groups

If you want to search for one or more groups, you can use the URL parameter "searchAttributes" to name attributes and the search pattern for them. The "=" needs also to be URL encoded and becomes "%3d". For attribute value you can work with asterisk "*", which needs to be entered URL encoded as "%2A".

GET http://portalhost:10039/wps/um/secure/groups/profiles?searchAttributes=cn%3dMy%2A

Result: HTTP 200

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
  <atom:title>Group profiles</atom:title>
  <atom:author>
    <atom:name>IBM WebSphere Portal</atom:name>
  </atom:author>
  <atom:link href="/wps/um/secure/groups/profiles?searchAttributes=cn%3DMy*"
  rel="self"/>
  <atom:id>um:secure/groups/profiles%3FsearchAttributes%3Dcn%3DMy*</atom:id>
  <atom:updated>2011-11-30T15:56:10.437Z</atom:updated>
  <atom:entry>
    <atom:title>cn=MyUserGroup,o=defaultWIMFileBasedRealm</atom:title>
    <atom:link
href="/wps/um/secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"
    rel="self"/>
    <atom:link
href="/wps/um/secure/groupmembership/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"
    rel="related"/>
    <atom:id>um:secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1</atom:id>
    <atom:updated>2011-11-30T15:56:10.437Z</atom:updated>
  </atom:entry>
</atom:feed>
```

Create

The following sample creates a group called "NewGroup". Note that the logged on user needs to be authorized for this operation.

POST http://portalhost:10039/wps/um/secure/groups/profiles

Input:

```
<?xml version="1.0" encoding="UTF-8"?>
<profile type="group" xmlns="http://www.ibm.com/xmlns/prod/websphere/um.xsd">
  <attribute name="description" type="string"><attributeValue>New Group</attributeValue></attribute>
  <attribute name="cn" type="string"><attributeValue>NewGroup</attributeValue></attribute>
</profile>
```

Result: HTTP 201 Created

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
  <atom:title>cn=NewGroup,o=defaultWIMFileBasedRealm</atom:title>
  <atom:link
```

```
href="/wps/um/secure/groups/profiles/Z8eAePPC46P475BC2MM07O1D2MMG63BD6JM8C6ROAMM473JC66OS6JHC6MSGCI1"
   rel="self"/>
   <atom:link
href="/wps/um/secure/groupmembership/Z8eAePPC46P475BC2MM07O1D2MMG63BD6JM8C6ROAMM473JC66OS6JHC6MSGCI1"
   rel="related"/>
   <atom:id>um:secure/groups/profiles/Z8eAePPC46P475BC2MM07O1D2MMG63BD6JM8C6ROAMM473JC66OS6JHC6MSGCI1</atom:i
d>
   <atom:updated>2011-12-01T15:17:52.474Z</atom:updated>
   <atom:content type="application/xml">
     <um:profile type="group" identifier="cn=NewGroup,o=defaultWIMFileBasedRealm">
        <um:attribute name="groups" type="Group" multiValued="true"/>
        <um:attribute name="viewIdentifiers" type="ViewIdentifierType" multiValued="true"/>
        <um:attribute name="partyRoles" type="PartyRole" multiValued="true"/>
        <um:attribute name="members" type="Entity" multiValued="true"/>
        <um:attribute name="identifier" type="xs:anyURI" multiValued="false">
          <um:attributeValue>/wps/um/secure/groups/profiles/Z8eAePPC46P475BC2MM07O1D2MMG63BD6JM8C6ROAMM473JC66OS
6JHC6MSGCI1</um:attributeValue>
        </um:attribute>
        <um:attribute name="seeAlso" type="xs:string" multiValued="true"/>
        <um:attribute name="createTimestamp" type="xs:dateTime" multiValued="false">
          <um:attributeValue>Thu Dec 01 16:17:52 CET 2011</um:attributeValue>
        </um:attribute>
        <um:attribute name="cn" type="xs:string" multiValued="false">
          <um:attributeValue>NewGroup</um:attributeValue>
        </um:attribute>
        <um:attribute name="description" type="xs:string" multiValued="true">
          <um:attributeValue>New Group</um:attributeValue>
        </um:attribute>
        <um:attribute name="displayName" type="xs:string" multiValued="true"/>
        <um:attribute name="businessCategory" type="xs:string" multiValued="true"/>
        <um:attribute name="children" type="Entity" multiValued="true"/>
     </um:profile>
   </atom:content>
</atom:entry>
```

Retrieve

You can retrieve user information by two different approaches:

1. Using serialized ObjectID:

http://portalHost:<portalPortNumber>/wps/um/secure/groups/profiles/<ObjectID>

e.g.:
http://portalhost:10039/wps/um/secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MM
G6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1

2. Using the DN:

http://portalHost:<portalPortNumber>/wps/um/secure/groups/profiles?identifier=<DN>

e.g.:

http://portalhost:10039/wps/um/secure/groups/profiles?
identifier=cn=MyUserGroup,o=defaultWIMFileBasedRealm

Note that you get the full attribute list on retrieve using the serialized ObjectID. Instead when using the identifier you only get the basic entry for the group as it is handled as a search. You can then specify the attributes you want to receive using the URL parameter "inIcudeAttributes", e.g. "&includeAttributes=createTimestamp,cn".

Update

You can update group profiles using PUMA REST API. In the following example the attribute

"description" is changed to "This is another group". All values send in the request payload will be replaced because we added the URL parameter "update=replace" (which would be the default as well).

Instead just using the "um" elements as in the sample below, you could also sent in the full result of a prior request with some changed values.

Note: Some attributes (in out-of-the-box setup only "cn") are read-only and cannot be changed. If you try it anyway, you will receive an HTTP 403 for such a request.

POST
http://portalhost:10039/wps/um/secure/groups/profiles/Z8eAe43P23R06IPCAJM4CLHP8JMG
64BDGJM07LPO2MM865JCE3P465BO2JQ4613?update=replace

Input:

```
<um:profile type="group" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd">
   <um:attribute name="description" type="string"><um:attributeValue>This is another group</um:attributeValue></um:attribute>
</um:profile>
```

Result: HTTP 200 OK

Delete
You can delete groups by sending a delete request to their profile URL. The user you have logged on with needs to have the authorization to delete (e.g. is the portal administrator).

DELETE
http://portalhost:10039/wps/um/secure/groups/profiles/Z8eAe6JP46PKCKHOIJMC6J1DIJMG
6JPCEJM8C3JD2JMOCP9OC3POCI1P43POC43

Result: HTTP 200 OK

Working with membership
Parameter showNested
The URL parameter "showNested" for memberhsip and memberOf request defines if you want to consider nested groups for membership, default is false.

Retrieving members of a group
You can retrieve members of a group by using the "memberOf" URL parameter with the serialized ObjectID of the group.

GET http://portalhost:10039/wps/um/secure/users/profiles?
memberOf=Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC
6MHPCJ1

Result: HTTP 200 OK

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>User profiles</atom:title>
   <atom:author>
      <atom:name>IBM WebSphere Portal</atom:name>
   </atom:author>
   <atom:link href="/wps/um/secure/users/profiles?
memberOf=Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"
   rel="self"/>
   <atom:id>um:secure/users/profiles%3FmemberOf
```

```
%3DZ8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1</atom:id>
   <atom:updated>2011-12-02T15:37:50.008Z</atom:updated>
   <atom:entry>
     <atom:title>uid=User2,o=defaultWIMFileBasedRealm</atom:title>
     <atom:link
href="/wps/um/secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
     rel="self"/>
     <atom:link
href="/wps/um/secure/groupmembership/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
     rel="related"/>
     <atom:id>um:secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613</atom:i
d>
     <atom:updated>2011-12-02T15:37:50.008Z</atom:updated>
   </atom:entry>
   <atom:entry>
     <atom:title>uid=User1,o=defaultWIMFileBasedRealm</atom:title>
     <atom:link
href="/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
     rel="self"/>
     <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
     rel="related"/>
     <atom:id>um:secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53</at
om:id>
     <atom:updated>2011-12-02T15:37:50.008Z</atom:updated>
   </atom:entry>
</atom:feed>
```

If you use expandRefs, you get all users' information as well, without the need to send a separate call on the users' URLs yourself. Use only when needed, as this significantly increases the amount of response data. If you want to get the data of just one of the users it might be better to send a separate call.

GET http://portalhost:10039/wps/um/secure/users/profiles?memberOf=Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1&expandRefs=true

Result: HTTP 200 OK

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>User profiles</atom:title>
   <atom:author>
     <atom:name>IBM WebSphere Portal</atom:name>
   </atom:author>
   <atom:link href="/wps/um/secure/users/profiles?
expandRefs=true&amp;memberOf=Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"
   rel="self"/>
   <atom:id>um:secure/users/profiles%3FexpandRefs%3Dtrue%26memberOf
%3DZ8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1</atom:id>
   <atom:updated>2011-12-05T08:54:18.869Z</atom:updated>
   <atom:entry>
     <atom:title>uid=User2,o=defaultWIMFileBasedRealm</atom:title>
     <atom:link
href="/wps/um/secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
     rel="self"/>
     <atom:link
href="/wps/um/secure/groupmembership/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613"
     rel="related"/>
     <atom:id>um:secure/users/profiles/Z9eAe5BDE3JH64BPEJMO6HHP2JMG6J1DGJM8CG9P6MM86NHC4MR8CL9PA6I5613</atom:i
d>
     <atom:updated>2011-12-05T08:54:18.869Z</atom:updated>
     <atom:content type="application/xml">
       <um:profile type="user" identifier="uid=User2,o=defaultWIMFileBasedRealm">
         <um:attribute name="givenName" type="xs:string" multiValued="true">
           <um:attributeValue>Sample</um:attributeValue>
```

```
              </um:attribute>
              <um:attribute name="uid" type="xs:string" multiValued="false">
                 <um:attributeValue>User2</um:attributeValue>
              </um:attribute>
              <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
                 <um:attributeValue>user2@ibm.com</um:attributeValue>
              </um:attribute>
              <um:attribute name="sn" type="xs:string" multiValued="false">
                 <um:attributeValue>User2</um:attributeValue>
              </um:attribute>
              <um:attribute name="cn" type="xs:string" multiValued="false">
                 <um:attributeValue>Sample User2</um:attributeValue>
              </um:attribute>
              <um:attribute name="displayName" type="xs:string" multiValued="true"/>
           </um:profile>
        </atom:content>
    </atom:entry>
    <atom:entry>
        <atom:title>uid=User1,o=defaultWIMFileBasedRealm</atom:title>
        <atom:link
href="/wps/um/secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
        rel="self"/>
        <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
        rel="related"/>
        <atom:id>um:secure/users/profiles/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53</at
om:id>
        <atom:updated>2011-12-05T08:54:18.869Z</atom:updated>
        <atom:content type="application/xml">
           <um:profile type="user" identifier="uid=User1,o=defaultWIMFileBasedRealm">
              <um:attribute name="givenName" type="xs:string" multiValued="true">
                 <um:attributeValue>Sample1234</um:attributeValue>
              </um:attribute>
              <um:attribute name="uid" type="xs:string" multiValued="false">
                 <um:attributeValue>User1</um:attributeValue>
              </um:attribute>
              <um:attribute name="ibm-primaryEmail" type="xs:string" multiValued="false">
                 <um:attributeValue>user1@ibm.com</um:attributeValue>
              </um:attribute>
              <um:attribute name="sn" type="xs:string" multiValued="false">
                 <um:attributeValue>User1</um:attributeValue>
              </um:attribute>
              <um:attribute name="cn" type="xs:string" multiValued="false">
                 <um:attributeValue>Sample User1</um:attributeValue>
              </um:attribute>
              <um:attribute name="displayName" type="xs:string" multiValued="true"/>
           </um:profile>
        </atom:content>
    </atom:entry>
</atom:feed>
```

Retrieving groups a user is member of

Without expandRefs you get the reference to the group only:

GET
http://portalhost:10039/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO
2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53

Result: HTTP 200 OK

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>Group membership list</atom:title>
   <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53"
   rel="self"/>
   <atom:id>um:secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53<
```

```
/atom:id>
   <atom:updated>2011-12-02T15:51:09.677Z</atom:updated>
   <atom:content type="application/xml">
     <um:groupMembershipList>
       <um:profileRef
uri="/wps/um/secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1"/>
     </um:groupMembershipList>
   </atom:content>
</atom:entry>
```

If you use the URL parameter "expandRefs", you get all group's information as well, without the need to do a retrieve call on the group URLs included in the response. Use only when needed, as this increases the response data . If you want to get the data of just one of the groups it might be better to do a retrieve call yourself.

GET
http://portalhost:10039/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO
2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53?expandRefs=true

Result: HTTP 200 OK

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:opensearch="http://a9.com/-/spec/opensearch/1.1/"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>Group membership list</atom:title>
   <atom:link
href="/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53?
expandRefs=true"
   rel="self"/>
   <atom:id>um:secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53
%3FexpandRefs%3Dtrue</atom:id>
   <atom:updated>2011-12-05T08:49:03.854Z</atom:updated>
   <atom:content type="application/xml">
     <um:groupMembershipList>
       <um:profileRef
uri="/wps/um/secure/groups/profiles/Z8eAe2BC6MPC62JO2MM4733D8MMG6O9CCMM476JC4JM864BO8MIP65BC6MHPCJ1">
         <um:profile type="group" identifier="cn=MyUserGroup,o=defaultWIMFileBasedRealm">
           <um:attribute name="cn" type="xs:string" multiValued="false">
             <um:attributeValue>MyUserGroup</um:attributeValue>
           </um:attribute>
         </um:profile>
       </um:profileRef>
     </um:groupMembershipList>
   </atom:content>
</atom:entry>
```

Adding member to a group
In this sample we add "user1" to the user group "VIP". Before doing this we have looked up the serialized group ObjectID, which is:
"Z8eAe4JC86J57H9C2JMO66RD6MMG62BC8JM8CL1P4MMG6L1C23SO6PPDE3JDCK1".

We need to send a request to the membership URL for "user1". As we want to add the membership, we set the url parameter "update=merge" to keep all existing group membership for that user.

POST
http://portalhost:10039/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO
2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53?update=merge

Input:

```
<groupMembershipList xmlns="http://www.ibm.com/xmlns/prod/websphere/um.xsd">
        <profileRef uri="um:groups/profiles/Z8eAe4JC86J57H9C2JMO66RD6MMG62BC8JM8CL1P4MMG6L1C23SO6PPDE3JDCK1"/>
</groupMembershipList>
```

Result: HTTP 200 OK

Removing member from a group

If we want to remove the user we send in the same payload as we would do for adding a member to a group. But we set the URL parameter "update=delete". The member will be deleted from all groups which we identify in the payload data.

POST
http://portalhost:10039/wps/um/secure/groupmembership/Z9eAeIHO8MOO6HHO4MM461RO2MMG6HPOEJM07L9EAMMS66BOCMGHC13CG3R8C53?update=delete

Input:

```
<groupMembershipList xmlns="http://www.ibm.com/xmlns/prod/websphere/um.xsd">
        <profileRef uri="um:groups/profiles/Z8eAe4JC86J57H9C2JMO66RD6MMG62BC8JM8CL1P4MMG6L1C23SO6PPDE3JDCK1"/>
</groupMembershipList>
```

Result: HTTP 200 OK

Working with attributes
Retrieving attribute definitions

The following samples show how to retrieve attribute definition for users or groups. In these examples we work only with user attributes but you can retrieve group attributes the same way by replacing the string "users" in the URLs with "groups".

Note that you only retrieve attribute definitions – you cannot update, add or delete attributes.

You can use the "expandRefs" URL parameter to get the attribute definitions in the list of references returned in the response. If you do not want to get them automatically, you can retrieve the attribute definition for any attribute by calling the attribute's link included in the response yourself

GET http://portalhost:10039/wps/um/secure/attributes/users

Result: HTTP 200 OK

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:feed xmlns:atom="http://www.w3.org/2005/Atom" xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
   <atom:title>Available user attributes</atom:title>
   <atom:author>
      <atom:name>IBM WebSphere Portal</atom:name>
   </atom:author>
   <atom:link href="/wps/um/secure/attributes/users" rel="self"/>
   <atom:id>um:secure/attributes/users</atom:id>
   <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
   <atom:entry>
      <atom:title>street</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/street" rel="self"/>
      <atom:id>um:secure/attributes/users/street</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
   </atom:entry>
   <atom:entry>
      <atom:title>roomNumber</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/roomNumber" rel="self"/>
      <atom:id>um:secure/attributes/users/roomNumber</atom:id>
```

```xml
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>viewIdentifiers</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/viewIdentifiers" rel="self"/>
    <atom:id>um:secure/attributes/users/viewIdentifiers</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>changeType</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/changeType" rel="self"/>
    <atom:id>um:secure/attributes/users/changeType</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>homePostalAddress</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/homePostalAddress" rel="self"/>
    <atom:id>um:secure/attributes/users/homePostalAddress</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>localityName</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/localityName" rel="self"/>
    <atom:id>um:secure/attributes/users/localityName</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>realm</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/realm" rel="self"/>
    <atom:id>um:secure/attributes/users/realm</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>businessAddress</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/businessAddress" rel="self"/>
    <atom:id>um:secure/attributes/users/businessAddress</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>homeAddress</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/homeAddress" rel="self"/>
    <atom:id>um:secure/attributes/users/homeAddress</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>employeeNumber</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/employeeNumber" rel="self"/>
    <atom:id>um:secure/attributes/users/employeeNumber</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>password</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/password" rel="self"/>
    <atom:id>um:secure/attributes/users/password</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>mobile</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/mobile" rel="self"/>
    <atom:id>um:secure/attributes/users/mobile</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>givenName</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/givenName" rel="self"/>
    <atom:id>um:secure/attributes/users/givenName</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
    <atom:title>postalAddress</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/postalAddress" rel="self"/>
    <atom:id>um:secure/attributes/users/postalAddress</atom:id>
    <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
```

```xml
    </atom:entry>
    <atom:entry>
       <atom:title>parent</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/parent" rel="self"/>
       <atom:id>um:secure/attributes/users/parent</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>jpegPhoto</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/jpegPhoto" rel="self"/>
       <atom:id>um:secure/attributes/users/jpegPhoto</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>manager</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/manager" rel="self"/>
       <atom:id>um:secure/attributes/users/manager</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>initials</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/initials" rel="self"/>
       <atom:id>um:secure/attributes/users/initials</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>mail</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/mail" rel="self"/>
       <atom:id>um:secure/attributes/users/mail</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>secretary</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/secretary" rel="self"/>
       <atom:id>um:secure/attributes/users/secretary</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>seeAlso</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/seeAlso" rel="self"/>
       <atom:id>um:secure/attributes/users/seeAlso</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>departmentNumber</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/departmentNumber" rel="self"/>
       <atom:id>um:secure/attributes/users/departmentNumber</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>countryName</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/countryName" rel="self"/>
       <atom:id>um:secure/attributes/users/countryName</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>pager</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/pager" rel="self"/>
       <atom:id>um:secure/attributes/users/pager</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>carLicense</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/carLicense" rel="self"/>
       <atom:id>um:secure/attributes/users/carLicense</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
    <atom:entry>
       <atom:title>stateOrProvinceName</atom:title>
       <atom:link href="/wps/um/secure/attributes/users/stateOrProvinceName" rel="self"/>
       <atom:id>um:secure/attributes/users/stateOrProvinceName</atom:id>
       <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
```

```xml
<atom:entry>
  <atom:title>uid</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/uid" rel="self"/>
  <atom:id>um:secure/attributes/users/uid</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>groups</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/groups" rel="self"/>
  <atom:id>um:secure/attributes/users/groups</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>ibm-jobTitle</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/ibm-jobTitle" rel="self"/>
  <atom:id>um:secure/attributes/users/ibm-jobTitle</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>kerberosId</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/kerberosId" rel="self"/>
  <atom:id>um:secure/attributes/users/kerberosId</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>postalCode</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/postalCode" rel="self"/>
  <atom:id>um:secure/attributes/users/postalCode</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>title</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/title" rel="self"/>
  <atom:id>um:secure/attributes/users/title</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>principalName</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/principalName" rel="self"/>
  <atom:id>um:secure/attributes/users/principalName</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>labeledURI</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/labeledURI" rel="self"/>
  <atom:id>um:secure/attributes/users/labeledURI</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>sn</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/sn" rel="self"/>
  <atom:id>um:secure/attributes/users/sn</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>businessCategory</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/businessCategory" rel="self"/>
  <atom:id>um:secure/attributes/users/businessCategory</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>st</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/st" rel="self"/>
  <atom:id>um:secure/attributes/users/st</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
  <atom:title>c</atom:title>
  <atom:link href="/wps/um/secure/attributes/users/c" rel="self"/>
  <atom:id>um:secure/attributes/users/c</atom:id>
  <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
</atom:entry>
<atom:entry>
```

```xml
      <atom:title>cn</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/cn" rel="self"/>
      <atom:id>um:secure/attributes/users/cn</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>l</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/l" rel="self"/>
      <atom:id>um:secure/attributes/users/l</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>displayName</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/displayName" rel="self"/>
      <atom:id>um:secure/attributes/users/displayName</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>telephoneNumber</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/telephoneNumber" rel="self"/>
      <atom:id>um:secure/attributes/users/telephoneNumber</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>ibm-primaryEmail</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/ibm-primaryEmail" rel="self"/>
      <atom:id>um:secure/attributes/users/ibm-primaryEmail</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>partyRoles</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/partyRoles" rel="self"/>
      <atom:id>um:secure/attributes/users/partyRoles</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>preferredLanguage</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/preferredLanguage" rel="self"/>
      <atom:id>um:secure/attributes/users/preferredLanguage</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>createTimestamp</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/createTimestamp" rel="self"/>
      <atom:id>um:secure/attributes/users/createTimestamp</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>facsimileTelephoneNumber</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/facsimileTelephoneNumber" rel="self"/>
      <atom:id>um:secure/attributes/users/facsimileTelephoneNumber</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>entitlementInfo</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/entitlementInfo" rel="self"/>
      <atom:id>um:secure/attributes/users/entitlementInfo</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>modifyTimestamp</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/modifyTimestamp" rel="self"/>
      <atom:id>um:secure/attributes/users/modifyTimestamp</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>description</atom:title>
      <atom:link href="/wps/um/secure/attributes/users/description" rel="self"/>
      <atom:id>um:secure/attributes/users/description</atom:id>
      <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
  </atom:entry>
  <atom:entry>
      <atom:title>children</atom:title>
```

```
        <atom:link href="/wps/um/secure/attributes/users/children" rel="self"/>
        <atom:id>um:secure/attributes/users/children</atom:id>
        <atom:updated>2011-12-05T09:14:49.587Z</atom:updated>
    </atom:entry>
</atom:feed>
```

Retrieving one attribute's definition

We use the attribute "description" as sample. For checking which attributes are available , please see your PUMA configuration or do a general attribute retrieval request as in the previous sample.

GET http://portalhost:10039/wps/um/secure/attributes/users/description

Result: HTTP 200 OK

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:xhtml="http://www.w3.org/1999/xhtml"
xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd" xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes">
    <atom:title>description</atom:title>
    <atom:link href="/wps/um/secure/attributes/users/description" rel="self"/>
    <atom:id>um:secure/attributes/users/description</atom:id>
    <atom:updated>2011-12-05T09:29:56.905Z</atom:updated>
    <atom:content type="application/xml">
        <um:attribute name="description" type="xs:string" multiValued="true"/>
    </atom:content>
</atom:entry>
```

Retrieving one attribute's value directly

You can directly address an attribute's value for a single user directly. This can be useful to embed a (person's profile) picture into html directly, e.g.:

```
<img src="http://localhost:10039/wps/um/secure/currentuser/profile/jpegPhoto"/>
```

For multi-value attributes, you can use the index parameter to access different values, e.g.:

```
<img src="http://localhost:10039/wps/um/secure/currentuser/profile/jpegPhoto?index=2"/>
```

A more complex example is to POST the content of attached file "Add4ImagesToUser.xml" to URL http://portalhost:10039/wps/um/secure/currentuser/profile. That file contains four small images in base64 encoded format (encoding has been done with JAVA class org.eclipse.emf.ecore.xml.type.internal.DataValue.HexBin). Thus those four images will be attached to the current user's profile will. Then load attached file AddressProfileAttributeDirectly.html in your browser and you should see something like this:

Address profile attributes directly

http://localhost:10039/wps/um/secure/currentuser/profile/jpegPhoto	
http://localhost:10039/wps/mycontenthandler?uri=um:secure/currentuser/profile/jpegPhoto&index=0	
http://localhost:10039/wps/um/secure/currentuser/profile/jpegPhoto?index=1	
http://localhost:10039/wps/um/secure/currentuser/profile/jpegPhoto?index=2	
http://localhost:10039/wps/um/secure/currentuser/profile/jpegPhoto?index=3	

Working with virtual principals

Virtual principals can be access using the following URLs:

- GET http://portalhost:10039/wps/um/anonymoususer/profile
- GET http://portalhost:10039/wps/um/allauthenticatedgroup/profile
- GET http://portalhost:10039/wps/um/allgroupsgroup/profile

This can be useful to access the serialized ObjectID of a virtual principal which can be used in other REST services, e.g. Access Control.

Result (for allgroupsgroup): HTTP 200 OK

```xml
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:xs="http://www.w3.org/2001/XMLSchema-datatypes" xmlns:um="http://www.ibm.com/xmlns/prod/websphere/um.xsd"
xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:atom="http://www.w3.org/2005/Atom">
    <atom:title>all portal user groups</atom:title>
    <atom:link href="/wps/um/groups/profiles/Z8eAe13RO6G0EFJS8NGHD09T6NI9E0PP4NNLEGRS0" rel="self"/>
    <atom:id>um:groups/profiles/Z8eAe13RO6G0EFJS8NGHD09T6NI9E0PP4NNLEGRS0</atom:id>
    <atom:updated>2012-01-03T12:52:15.645Z</atom:updated>
    <atom:content type="application/xml">
        <um:profile type="group" identifier="all portal user groups">
            <um:attribute name="groups" type="Group" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="viewIdentifiers" type="ViewIdentifierType" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="partyRoles" type="PartyRole" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="members" type="Entity" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
```

```
            </um:attribute>
            <um:attribute name="seeAlso" type="xs:string" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="cn" type="xs:string" multiValued="false">
                <um:attributeValue>all portal user groups</um:attributeValue>
            </um:attribute>
            <um:attribute name="description" type="xs:string" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="displayName" type="xs:string" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="businessCategory" type="xs:string" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
            <um:attribute name="children" type="Entity" multiValued="true">
                <um:attributeValue>null</um:attributeValue>
            </um:attribute>
        </um:profile>
    </atom:content>
</atom:entry>
```

Links

- Remote PUMA SPI REST Service: http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Remote_PUMA_SPI_REST_Service_wp7
- "Web security concepts and considerations for IBM WebSphere Portal administrators": http://www-10.lotus.com/ldd/portalwiki.nsf/dx/Web_security_concepts_and_considerations_for_IBM_WebSphere_Portal_administrators